

the month, without, however, causing material damage to vegetation.

BOSTON FORECAST DISTRICT.

The month was cooler than usual with more than the average number of clear days, and during the closing week light and killing frosts occurred in some of the northern sections of New England. Local storms were less frequent than usual although several of great violence were reported. No heavy rain or windstorms visited the coast.—*J. W. Smith, District Forecaster.*

NEW ORLEANS FORECAST DISTRICT.

No important disturbances occurred along the Gulf coast. The weather was generally mild, and precipitation was deficient over portions of the district.—*I. M. Cline, District Forecaster.*

CHICAGO FORECAST DISTRICT.

The weather for the month was, as a whole, fine. Storm warnings were not ordered nor required for the upper Lakes. The barometric depressions that crossed the Western and Northwestern States were in several instances attended by thunderstorms and heavy local rains. There was no stagnation of barometric areas and no prolonged periods of heat. Injurious frost or frost temperatures were not produced by the cooler weather of the third decade of the month.—*E. B. Garriott, Professor and District Forecaster.*

DENVER FORECAST DISTRICT.

Over the greater part of the district the month was warm and drier than usual and no frost warnings were required. During the evening of August 24 a torrential rain fell in the foot hills, twelve miles northwest of Trinidad. The canyon soon carried deep torrents. In Road Canyon, a deep and very narrow gorge, in which Berwind and Tabasco are located, many houses and their occupants were carried away by the wall of water 30 feet high that swept down the canyon during the darkness and the storm. About 35 lives were lost, the failure of many to escape being accounted for by the steepness of the sides of the canyon. Railroad tracks were washed out and two railroad bridges near Ludlow were carried away. The Apishapa and the Purgatory rivers drain the region; these streams did not leave their banks.—*F. H. Brandenburg, District Forecast Official.*

SAN FRANCISCO FORECAST DISTRICT.

The month as a whole was without special features of interest and no frost, cold wave, or storm warnings were issued.—*A. G. McAfee, Professor and District Forecaster.*

PORTLAND FORECAST DISTRICT.

The month was unusually dry and east of the Cascade Mountains it was warmer than usual. During the 27th a

shallow low pressure area, central over western Idaho, rapidly deepened, and, at the same time, a high pressure area moved inland from off the Oregon and northern California coasts. These conditions produced a severe dust storm from 4 to 8 p. m. The storm was first noticed in northeastern Oregon, and afterwards in eastern Washington as far north as Spokane. The wind velocities were not sufficiently high to be destructive, but being attended by clouds of dust, they caused great annoyance and excited considerable attention. Warnings for light frost were issued on the morning of the 31st and were partially verified. No storm warnings were ordered.—*Edward A. Beals, District Forecaster.*

RIVERS AND FLOODS.

The rivers of the Mississippi system maintained good average stages during the month, the quantity and equitable distribution of the rainfall preventing the steady decline that usually sets in about this time of the year. The flood that began on July 29 in the White and Black rivers of Arkansas was neither prolonged nor destructive, although danger-line stages were general, except along the extreme northern portion of the White River. Along the rivers of the Atlantic system the month was comparatively uneventful, except in southeastern Pennsylvania, where the heavy local storms of the 24th and 25th caused a flood in the smaller streams that has not been equaled since the great floods of May 31–June 1, 1889. It was particularly severe at and in the vicinity of the city of York. Codorus Creek overflowed its banks in many places, necessitating the suspension of business, including railroad traffic, and causing a great amount of damage. There were also moderate floods from the 11th to the 16th in the northern and eastern portions of South Carolina, due to the heavy rains of the 8th, 9th, and 10th. The Wateree and Pedee rivers and their tributaries were generally above the danger lines, and some damage was done to growing crops. Warnings for these floods were issued at the proper time.

The highest and lowest water, mean stage, and monthly range at 275 river stations are given in Table VI. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.—*H. C. Frankenfield, Professor of Meteorology.*

CLIMATE AND CROP SERVICE.

By Mr. JAMES BERRY, Chief of Climate and Crop Division.

The following summaries relating to the general weather and crop conditions during August are furnished by the directors of the respective sections of the Climate and Crop Service of the Weather Bureau; they are based upon reports from cooperative observers and crop correspondents, of whom there are about 3300 and 14,000, respectively:

*Alabama.*—Temperature about normal; average rainfall for the State excessive, but deficient in northeastern, some central, and southeastern counties. Cotton deteriorated steadily, except that it continued fairly satisfactory in some northern and central counties; rust, shedding, and boll rot became general, causing much damage; some early cotton ceased blooming by the 20th; bolls opened slowly; picking general by the 24th. Corn and other food crops made generally satisfactory progress; some early corn gathered. Much fodder and hay damaged by rain.—*F. P. Chaffee.*

*Arizona.*—There was more than the usual amount of cloudiness; thunderstorms were frequent; the rainfall, although slightly deficient, was quite evenly distributed, and the temperature was above the normal. Harvesting of grain progressed slowly in the northern section. Crops made good growth. Fall garden truck was planted extensively. Late corn was in tassel at the end of the month. Potatoes came up to good stands. Local winds and hail injured gardens slightly. Fifth cutting of

alfalfa began on the 26th. Stock thrifty. Water supply abundant for all purposes.—*L. N. Jesunofsky.*

*Arkansas.*—Weather favorable for farm work and growing crops. Cotton improved, fruited fairly well, and began opening by close of month; it was injured locally by rust, shedding, and insects. Early corn good, matured nicely; the late improved and ranged from poor to good. Threshing practically completed; wheat poor yield, oats good, quality of both excellent. Sweet and Irish potatoes, field peas, and turnips did well. Considerable hay saved in good condition. Apples poor crop of inferior quality.—*O. C. Burrows.*

*California.*—Although the mean temperature for the month was slightly below normal, exceedingly hot weather prevailed on the 7th and 8th in the central and northern sections and records of maximum temperatures in southern California were broken on the 28th and 29th. Grapes and beans were somewhat damaged by the heat, which in other respects was beneficial. Grape picking and raisin making commenced toward the close of the month.—*Alexander G. McAfee.*

*Colorado.*—The weather conditions were generally favorable. Harvesting, haying, and threshing progressed very satisfactorily. The yield of winter wheat was very good and the quality fine, but reports as to spring wheat were not so favorable. The yield of barley, rye, and oats was generally good, as was also the quality. Corn and sugar beets were very promising, and the condition of potatoes generally good. Ranges afforded adequate feed, but the need of rain was felt at close of month.—*P. McDonough.*

**Florida.**—The temperature averaged 0.6° above the normal and the precipitation 3.72 inches in excess of the average. Unfavorable weather continued during the greater part of the month. Too much rain damaged cotton seriously, reducing the probable yield to about one-half of an average crop. Citrus trees were vigorous, with but few complaints of the loss of fruit. Cane was very good, except on lowlands, which were too wet. Field peas, cassava, and pineapples advanced nicely. The bulk of the corn crop was housed.—*A. J. Mitchell.*

**Georgia.**—Temperature and rainfall somewhat below normal, rainfall well distributed generally. Cotton deteriorated, damaged by drought first decade and by rains later; serious injury by black root, rust, and shedding; no top crop developed; picking began south about 5th and became general by 25th, all gathered in scattered fields south at end of month; small yield indicated. Large crop of hay and fodder saved, quality excellent. Weather favorable to minor crops, which were unusually good. Fall plowing was begun.—*J. B. Marbury.*

**Hawaii.**—Entire month warm, although slightly cooler during the last week. Well distributed and abundant rainfall, except in portions of the north Kohala and Kau districts of Hawaii and leeward portions of other islands. Growing cane made rapid progress, although weeds were troublesome in windward plantations and high winds caused some slight damage. A few mills still grinding 1905 cane; planting for 1907 crop general. Summer pineapple season drawing to a close; winter crop showing up nicely. Coffee in good condition in all sections, but ripening of berries retarded in Kona, Hawaii, by continued cloudy and showery weather. Second crop of rice doing nicely. Pastures, on the whole, improved considerably during month.—*Alexander McC. Ashley.*

**Idaho.**—Excessively warm first week, causing rapid ripening and some shrinking of wheat; later the temperature was somewhat variable, though averaging above normal; some frost occurred in northern counties on the 31st. Water for late hay crop was scarce in many places; ranges became very dry, and some stock was fed. Though heat and drought affected fruit adversely, the crop promised generally to meet expectations. A large crop of beets was maturing well.—*Edward L. Wells.*

**Illinois.**—The temperature conditions were favorable for crop development throughout the month. There was a dearth of moisture in some localities, but precipitation was generally ample. Corn maintained an excellent condition during the month, giving promise of a heavy yield. At the end of the month thrashing was nearing completion, with generally compensating results; broom corn of good quality was being harvested. The potato outlook was not altogether promising, and apples were mostly disappointing.—*Wm. G. Burns.*

**Indiana.**—Generally weather conditions were favorable to farming interests. Wheat and oats were mostly thrashed; the wheat yield was unusually good and that of oats about average. Corn developed rapidly and promised an excellent crop. The early potato crop was light. Clover seed was yielding a light crop. Tobacco was being cut, crop good. Apple crop light, peaches and pears fair. Fall plowing in progress, ground in good condition.—*W. T. Blythe.*

**Iowa.**—August was above normal in temperature, and 3.7° warmer than July. This was highly favorable to the corn crop, which made good progress during the month, being within 20 to 30 days of full maturity on September 1. The rainfall was also a little in excess, which kept pastures green and promoted a heavy growth of aftermath in clover and timothy meadows. Thrashing was considerably delayed and grain in shock was somewhat injured by frequent showers. As a whole, the month was favorable.—*John R. Sage.*

**Kansas.**—Early corn matured during the month and cutting began the last week. Late corn had grown well, but needed rain. Thrashing continued; wheat and oats yielded better than at first. Third crop of alfalfa cut in northern counties and fourth crop in southern. Prairie haying progressed during the month, and a good crop was put up. Plowing for fall seeding continued. Apples fell badly the last week. Potatoes did fairly well.—*T. B. Jennings.*

**Kentucky.**—Temperature slightly below normal. First and middle of month showery; heavy showers on the 23d; latter part of month dry. Corn mostly matured, with heavy crop; late doing well. Tobacco ripening and a portion cut; some reports of firing and house burning. Peas, millet, and sorghum made good yields. Hemp good. Peaches made poor crop; apples continued falling and rotting, with poor prospects for winter varieties. Pastures green and stock in fine condition.—*Geo. B. Wurtz.*

**Louisiana.**—Weather conditions during August did not materially interfere with the cultivation of crops, but occasional showers in many localities made it impossible to kill grass and weeds, which grew and spread rapidly. Cotton, as a whole, improved very little, if any, during the month. Picking commenced during the last decade. Sugar cane was promising. Rice harvest and thrashing were interfered with by occasional showers. Corn was maturing a poor yield. Truck gardens made satisfactory growth.—*I. M. Cline.*

**Maryland and Delaware.**—Moderate temperatures prevailed, with the precipitation in excess of normal. Wheat yields fair and quality good, though some was damp. Corn a large crop and fodder heavy. Buckwheat did well and was nearly ready to cut. Pastures remained green. Oats were a good crop. Fall work progressed nicely. Apples improved and a good crop was indicated. Pears were abundant, but peaches scarce.

Grapes, good indications. Tobacco cutting was pushed, with a light crop. Tomatoes were scarce, but canning corn plentiful. Potatoes, garden truck, and melons in abundance.—*C. F. von Herrmann.*

**Michigan.**—Weather conditions during August were generally very favorable to corn, beans, sugar beets, buckwheat, and garden truck, but it was too wet for potatoes, which were injured by blight. Oat harvest was completed under favorable conditions. Plowing for fall seeding was quite generally begun during the latter part of the month. The apple prospect continued poor, but peach and plum yields were abundant.—*C. F. Schneider.*

**Minnesota.**—Much warm weather before the 15th. Rainy on many days of the month. Spring wheat and oat harvest continued all the month, advancing steadily northward. Flooded northern lowlands delayed harvest seriously. Barley cutting finished by the 15th. Good flax crop being cut all the month. Stacking and shock thrashing in progress whenever grain was dry. Corn grew well all the month. Potato crop uneven, with considerable rot. Wild hay was secured where possible. Seed timothy good in southeast.—*T. S. Outram.*

**Mississippi.**—Over much of the State there was too much rain for cotton, which was considerably injured by rust and shedding, and in some localities blight and boll worms were damaging; much of the crop was undersized and plants that were large did not fruit well; bolls opened rapidly toward the close of the month and picking was commenced south. Fodder pulling and haying, although interrupted by rains, progressed fairly well. Young corn promising. Peas, potatoes, and sugar cane did well. Turnips and fall gardens were planted.—*W. S. Belden.*

**Missouri.**—The weather was generally favorable. Thrashing was practically completed, with good yields of wheat, rye, and oats. Corn made good and steady growth. The advanced crop was fully matured, and cutting began during the last decade. The outlook was highly promising for one of the largest yields ever produced. Cotton suffered somewhat from excessive moisture and was in poor condition on lowlands; upland cotton was in fair condition. A fair crop of hay was saved. Apples were very scarce. Potatoes were giving fair returns.—*George Reeder.*

**Montana.**—The month was warm, except during the week beginning the 15th; light frosts injured tender plants in some mountain localities on the 16th. Rainfall deficient over much the greater portion of the State. Winter wheat harvest commenced early in the month; oats and spring wheat ripened rapidly the latter half; grain harvest, except oats, nearly completed. Thrashing in progress the last two weeks. Second crop of alfalfa was mostly harvested and a fair yield reported. Range grass cured in most sections. Cattle and sheep maintained a good condition. Stock wheat scarce in places. Potatoes and apples promised good crops.—*R. F. Young.*

**Nebraska.**—August was a warm, wet month. Corn made an excellent growth and gave promise of a large crop at the end of the month. Harvesting was finished in northern counties by the 15th. Thrashing and haying progressed nicely. Prairie hay was an excellent crop and an unusually large amount was secured in good condition. The soil was generally moist enough to work well and plowing progressed rapidly and was mostly finished by the end of the month.—*G. A. Loveland.*

**Nevada.**—The month was warm and dry. Water for irrigation and stock was scarce. The first crop of alfalfa was good, the second very light. The yield of grain was satisfactory. Vegetables did well in irrigated sections, but poorly elsewhere. The potato crop was fair. Fruit was poor, except apples, which promised a fair crop. Stock was in good condition, but range feed was not satisfactory at the close of the month.—*H. F. Alps.*

**New England.**—The weather of the month was very pleasant, with more than the usual number of clear days, much of the rain falling during the nights. Rainfall was deficient in northern sections, with a drought in parts of Maine, and was normal or excessive elsewhere. Light to killing frosts occurred in northern sections, without great damage. Weather generally favorable to crops and to harvesting and housing, except in sections where droughty conditions prevailed.—*J. W. Smith.*

**New Jersey.**—At the close of the month all late truck crops were in good growing and maturing condition; fall plowing was well advanced and some wheat and rye seeded; pasturage was very much improved by the frequent rains; late potatoes and field tomatoes promised to be below the average; apples, peaches, and pears, except Kieffer, did not promise well; cranberries maturing, the yield promising to be less than last year.—*Edward W. McGinn.*

**New Mexico.**—Precipitation averaged considerably below the normal and most of it came early, so that rain was needed toward close. The early rains revived crops and renewed water supply, carrying fields well into month or to maturity. Harvesting and thrashing of wheat, oats, and barley continued slowly in higher northern districts. Considerable native hay was secured, also second crop alfalfa in north and third crop in south. Corn matured rapidly toward close and cutting began. Range grasses generally cured, but stock continued in prime condition.—*Charles E. Linney.*

**New York.**—The month was moderately cool, with about normal precipitation, which was fairly well distributed and was favorable for crop growth. Much wheat, rye, and oats were thrashed, with good yields. Corn and buckwheat made good growth. Beans suffered from rust and

SUMMARY OF TEMPERATURE AND PRECIPITATION BY SECTIONS, AUGUST, 1905.

In the following table are given, for the various sections of the Climate and Crop Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trustworthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observation. Of course the number of such records is smaller than the total number of stations.

Section.	Temperature—in degrees Fahrenheit.								Precipitation—in inches and hundredths.									
	Section average.	Departure from the normal.	Monthly extremes.				Section average.	Departure from the normal.	Greatest monthly.		Least monthly.							
			Station.	Highest.	Date.	Station.			Lowest.	Date.	Station.	Amount.	Station.	Amount.				
Alabama	79.2	- 0.4	Gadsden	102	6	Oneonta	54	28	5.30	+1.24	Spring Hill	12.14	Letohatchie	0.68				
Arizona	82.8	+ 0.6	Parker	126	6	Fort Defiance	42	11, 12	2.05	-0.45	Huachuca Reservoir	5.37	3 stations	0.00				
Arkansas	79.1	0.0	Howe	103	25	Huntsville	51	28	3.73	+0.60	Fayetteville (No. 2)	7.25	Howe	0.60				
California	73.4	- 0.5	Volcano Springs	119	8	Bodie	21	1	0.03	-0.02	Greenville	0.96	Many stations	0.00				
Colorado	66.0	+ 0.8	Blaine	108	24	Wagon Wheel Gap	26	5	1.33	-0.33	Victor	5.11	Saguache	0.15				
Florida	80.9	+ 0.8	Molino	102	24	Molino	59	28	11.24	+3.72	Summer	24.76	Key West	3.14				
Georgia	78.6	- 0.5	Hawkinsville	106	6	Diamond	52	29	4.96	-1.08	Diamond	13.00	Valdosta	0.68				
Hawaii	75.5	.....	Pahala, Hawaii	96	8	Huonua, Hawaii	40	5	13.35	.....	Honolulu, Maui	37.76	Kihai, Maui	0.07				
Idaho	68.2	.....	Glenns Ferry	112	7	Landore	25	16	0.34	.....	Lemhi Agency	1.52	4 stations	0.00				
Illinois	75.1	+ 1.3	3 stations	99	3 dates	Lauark	47	26	3.48	+0.49	Lauark	7.90	Mattoon	1.16				
Indiana	74.1	+ 0.8	Rome	101	6	Logansport	46	17	5.05	+1.75	Princeton	12.85	Winamac	2.12				
Iowa	74.3	+ 2.3	Waukee	104	11	Rock Rapids	44	6	4.05	+0.48	Plover	8.47	Vinton	1.05				
Kansas	78.7	- 1.8	Achilles	112	31	Achilles	47	28	1.85	-1.28	Pleasanton	6.74	Saline	0.04				
Kentucky	75.7	- 0.5	Paducah	99	6	Greensburg	42	22	3.82	+0.36	Catlettsburg	7.46	Rowling Green	1.19				
Louisiana	82.6	+ 1.2	Alexandria	104	25	Robeline	60	29	4.92	-0.22	Venice	13.56	Robeline	1.30				
Maryland and Delaware	72.9	- 0.8	Boethelville, Md.	104	23	Deer Park, Md.	38	28	5.30	+1.45	Millsboro, Del.	12.33	Deer Park, Md.	1.85				
Michigan	67.9	+ 1.6	Allegan	96	23	Humboldt	27	1	2.68	+0.34	Coldwater	8.03	Baraga	0.75				
Minnesota	68.9	+ 1.8	4 stations	99	10	Mount Iron	36	1	4.36	+0.57	Stillwater	8.82	Morris	1.46				
Mississippi	80.7	+ 0.6	Water Valley	103	24	Ripley	54	29	5.52	+0.95	Pecan	11.81	Natchez	0.88				
Missouri	76.4	+ 0.6	Princeton	99	12	Louisiana	48	26	4.63	+1.09	Neosho	9.32	Steffenville	1.35				
Montana	67.8	+ 2.5	Windsor	99	24	Wolsey	24	16	0.6	-0.37	Dillon	2.77	4 stations	0.00				
Nebraska	74.2	+ 1.4	Billings	104	24	Lynch	104	10	2.79	+0.15	Palmyra	8.85	Seneca	0.04				
Nevada	70.7	+ 0.9	Lynch	104	31	Purdum	104	31	39	19	Agate	19	6 stations	0.00				
New England*	65.4	- 2.4	2 stations	108	8	Quinn River Ranch	31	29	0.27	-0.21	Wood	1.39	Patten, Me.	0.06				
New Jersey	71.1	- 1.4	3 stations	92	3 dates	Patten, Me.	32	29	3.63	-0.38	Norwalk, Conn.	7.37	Toms River	3.51				
New Mexico	72.6	+ 1.4	3 stations	95	3 dates	Charlotteburg	38	19	5.72	-1.24	Tuckerton	9.88	Magdalena	0.01				
New York	65.3	- 0.6	Carlsbad	104	16	Elizabethtown	34	14	1.43	-0.93	Magdalena	4.05	Roswell	0.01				
North Carolina	74.8	- 1.3	San Marcial	104	28, 29	Paul Smiths	31	26	4.20	+0.02	Mount Hope	7.98	Tionderoga	1.32				
North Dakota	67.5	+ 2.0	Coeymans, Lyons	94	10	Linnville	37	29	6.48	+0.65	Horse Cove	14.36	Hatteras	1.65				
Ohio	71.7	+ 0.2	Lumberton	101	7	Linnville	37	29	6.48	+0.65	Fargo	6.82	Williston	0.74				
Oklahoma and Indian Territories	80.8	- 0.1	Pinehurst, Selma	101	7	McKinney	34	30	2.62	+1.18	Fargo	6.82	Jacksonburg	10.97	Tiffin	1.61		
Oregon	66.1	+ 0.7	Lima	96	13	Colebrook	41	3	4.46	+1.56	Jacksonburg	10.97	Stillwater, Okla.	8.15	Ravia, Ind. T.	0.65		
Pennsylvania	69.6	- 0.4	Thurmau	96	5	Greenhill	41	3	4.46	+1.56	Stillwater, Okla.	8.15	Nehalem	1.92	31 stations	0.00		
Porto Rico	79.7	.....	Chickasha, Ind. T.	110	16	Kenton, Okla.	51	10	3.38	+0.85	Stillwater, Okla.	8.15	Coudersport	10.83	Elwood Junction	1.92		
South Carolina	77.9	+ 1.5	Beulah	111	7	Beulah	24	31	0.18	-0.32	Nehalem	1.92	Las Cruces	21.19	Santa Isabel	1.93		
South Dakota	72.3	+ 2.1	Hamburg	95	6	Coudersport	36	28	5.71	+1.49	Las Cruces	21.19	Santuc	10.87	Beaufort	2.30		
Tennessee	76.5	+ 0.6	Manati	98	3 d't's	Adjuntas	53	8	8.78	.....	Las Cruces	21.19	La Delle	8.22	Grand River School	0.36		
Texas	83.6	+ 1.2	Central Aguirre	98	11	Adjuntas	53	8	8.78	.....	Las Cruces	21.19	Santuc	10.87	Andersonville	12.05	Brownsville	1.79
Utah	71.4	+ 0.2	Aiken	107	7	Aiken	46	26	5.69	-0.54	Santuc	10.87	Rhineland	4.00	3 stations	0.00		
Virginia	73.0	- 1.5	Ashcroft	108	28	Kidder	41	25	2.76	+0.10	La Delle	8.22	Ibapah	2.22	La Sal	T.		
Washington	65.5	- 0.8	Hamilton Springs	99	6	Erasmus	45	29	4.99	+0.93	Andersonville	12.05	Fredericksburg	8.43	Farmville	2.15		
West Virginia	71.3	- 1.1	Lewisburg, Liberty	99	6	Silver Lake	45	29	4.99	+0.93	Andersonville	12.05	Clearwater	3.07	7 stations	0.00		
Wisconsin	68.6	+ 1.1	Eagle Pass	109	1	Texline	50	3 dates	1.20	-1.41	Rhineland	4.00	Huntington	8.32	Leonard	1.32		
Wyoming	63.9	+ 0.4	Fort McIntosh	109	3	Woodruff	26	31	0.74	-0.04	Ibapah	2.22	Barron	8.50	Florence	2.04		
			Rockville	110	6	Burkes Garden	41	27, 29	5.03	+1.03	Fredericksburg	8.43	Moercroft	3.10	3 stations	T.		
			St. George	110	7	Wilbur	29	31	0.59	-0.10	Clearwater	3.07						
			Arvonla	97	7, 23	Bayard	40	28	4.25	+0.63	Huntington	8.32						
			Dinwiddie	97	7	Grand Rapids	32	25	4.87	+1.96	Barron	8.50						
			Mottingers Ranch	110	6	Riverside, Y. N. P.	27	18	0.98	+0.08	Moercroft	3.10						
			Moorefield	96	29													
			New Martinsville	96	24													
			Darlington	99	5													
			Prairie du Chien	99	11													
			Basin	102	25													

\* Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. † 47 stations, with an average elevation of 597 feet. ‡ 130 stations.

blight. Hops matured quite rapidly. A fine crop of tobacco was being secured in good condition. Potatoes were struck by blight and deteriorated considerably. Apples continued to drop; pears and plums remained fairly good, and peaches and grapes promised good. — *W. C. Devereaux.*

**North Carolina.**—During the first part of the month rains were heavy and crops on lowlands were washed and damaged considerably; land became too wet to cultivate and crops became weedy; later the conditions improved. The temperature for the month was about normal. Cotton commenced to open about the middle of the month, but, it was said, prematurely. Much lowland corn was destroyed by excessive moisture, but upland corn fared better. Most of the tobacco was cut and cured; the yield was fair, but the leaf was light. Minor crops were doing well. Fruit, except grapes, generally very poor. — *A. H. Thiessen.*

**North Dakota.**—The weather was not entirely favorable for farm work during the month, harvesting being often interrupted and delayed by frequent rains, which were so heavy in the eastern portions that some low land was flooded and made so soft and wet that machines could not get in the fields. The fore part of the month was generally cool, but the latter part quite warm, forcing grain crops to mature rapidly. — *B. H. Bronson.*

**Ohio.**—At the end of the month fall plowing had become general and wheat and oat thrashing was nearly completed. Corn had made rapid progress and was in good condition, with prospects that the bulk of the crop would be safe from frost by September 20 to 25. Tobacco cutting was in progress; crop in good condition. Pastures good. Potato digging in progress; some reports of blight and rot in central and north-eastern counties. Outlook for fruits poor. — *J. Warren Smith.*

**Oklahoma and Indian Territories.**—Average temperature and precipitation were beneficial, generally, to all crops. Fall wheat plowing nearing completion, with ground in good condition. Early corn giving fair to good yields; late eared out and doing well. Cotton improved, fruiting and bolling well, and in poor to fair condition, with some picked. Minor crops being harvested, with good yields. Hay nearly harvested, with good yields. Fruit a poor to fair yield. — *C. M. Strong.*

**Oregon.**—The harvesting and the thrashing of the grain crop, which continued throughout August, were practically completed by the middle of the third decade. Fall wheat and barley gave average yields, but spring wheat and oats were disappointing. Corn and hops made good advancement. Late potatoes and gardens generally made poor growth because of the dryness of the month. Peaches and apples proved below

the average in quantity. Pears yielded abundantly.—*Edward A. Beals.*

**Pennsylvania.**—The prevailing conditions were generally favorable for farm work and the advance of growing crops. At the close of the month tobacco was in an unusually promising condition and a large portion of Havana had been housed; thrashing was well under way and yields satisfactory; corn was large in stalk and well eared; buckwheat was filling well; garden truck and pastures were good and plentiful; potatoes were suffering from rot and blight; apples were wormy and dropping, and peaches were fair in many localities.—*T. F. Townsend.*

**Porto Rico.**—The rainfall for the month was much in excess of the normal. The drought, which prevailed at many places during the first part of the month, was broken by the heavy showers of the 9th. Cane did finely, except in the unirrigated fields of the southern section, where more rain was needed. Coffee prospects were excellent. Much land being prepared for tobacco, with indications that the tobacco acreage will be greatly increased over that of last season. The cotton yield was light, the plant having been badly damaged by worms in many places. Small crops and fruits were generally abundant.—*A. L. Brockway.*

**South Carolina.**—Temperatures had an unusually wide range, but were generally favorable. Precipitation was generally about normal. Cotton deteriorated on sandy lands, due to rust that caused excessive shedding, while on heavy soils and on the sea islands there was slight improvement. Opening began with the month and picking became active after the 20th. Early corn reached maturity and later plantings improved steadily. Late tobacco was better than the early crop. Rice harvest began. Minor crops did well.—*J. W. Bauer.*

**South Dakota.**—Favorable temperature. Wind and rain lodged late wheat and oats in some northeastern counties, somewhat retarded harvest, and injured some grain in shock. Scattered fields of wheat were slightly injured by black rust. Cutting of small grains was completed; thrashing from shock indicated mostly good yields, but there was considerable smutty wheat and discolored barley. Corn, grass, flax, potatoes, and millet did well. Corn was in promising condition and well eared. Flax and millet harvest was begun. Haying advanced favorably, with generous yields.—*S. W. Glenn.*

**Tennessee.**—Except in a few localities, the rainfall was ample, and temperature conditions were generally favorable. At the end of the month early corn was maturing well and the yield was good. Late corn was much improved and promised a fair crop. A fine crop of tobacco was being cut. Cotton was opening; generally rank in stalk growth, but not well balled. Peanuts, turnips, and potatoes were good. Apples were poor. Hay crops were good.—*H. C. Bate.*

**Texas.**—Temperatures were generally above normal. Rainfall was in the form of showers, and was generally deficient, especially during the latter part of the month. Soil too dry and hard for plowing. Crops deteriorated decidedly, especially during the latter part of the month. Cotton improved early in the month, but later deteriorated decidedly; growth of plant and putting on squares were checked and bolls opened prematurely; in the northeast there was some improvement throughout the month; bolls opened rapidly in central and southern counties

and picking was pushed; boll weevils diminished, but were still doing considerable damage. Rice and sugar cane generally did well, but suffered somewhat from dry weather.—*M. E. Blystone.*

**Utah.**—Thunderstorms were numerous, but the accompanying precipitation was insufficient for vegetation in some localities. Grain harvesting was nearing completion and thrashing was general; average yields were mostly reported. Beets were maturing and nearly ready to gather; the crop was generally in good condition, though suffering in localities from insects and blight. Lucerne was mostly gathered. Corn was in good condition. Ranges were dry, but stock was in good condition. The supply of water was low in some sections, and in consequence the work of irrigation was greatly impeded.—*R. J. Hyatt.*

**Virginia.**—The weather of the month was, on the whole, favorable for general crop progress. The temperatures prevailing, though lower than normal, were not enough so to be unseasonable. Precipitation was frequent during the first half of the month. Corn and tobacco did very well, cutting of the former and cutting, housing, and curing of the latter being well advanced by the 20th. Pastures were in good condition throughout the month. A great deal of fall plowing and other preparation for seeding was completed. There was no important improvement in the outlook for the apple crop.—*Edward A. Evans.*

**Washington.**—The month was dry in eastern counties and favorable for harvesting oats, barley, and an immense crop of wheat, although heavy winds in the central and southeastern counties considerably damaged the latter. The oat crop in western counties was somewhat injured by heavy rains. The month was too dry for pastures and potatoes.—*G. N. Salisbury.*

**West Virginia.**—The weather was generally favorable for farm work, and frequent showers were beneficial for crop growth. Harvesting was about completed during the first two weeks. Thrashing and fall plowing were in progress, with good yield of wheat and large yield of oats. Pastures and stock were in fine condition. Corn made good growth, and was very promising. Millet, buckwheat, cowpeas, sweet potatoes, and tobacco were doing well. Irish potatoes were deteriorating somewhat. The prospects for apples and other fruits were poor.—*E. C. Vose.*

**Wisconsin.**—Weather during the month marked by frequent rains, heavy at points, retarding thrashing and harvesting and causing some damage to grain. Much damage was done during the early part of the month by high winds, which lodged standing grain badly. Corn improved steadily, and, except on lowlands, was in excellent condition at the end of the month. Small grains furnished satisfactory yields, as a rule. Potatoes and apples very poor. Tobacco and buckwheat excellent. Pastures very satisfactory.—*J. W. Schaeffer.*

**Wyoming.**—The weather of the month was favorable for the completion of haying, except that in some sections the work was delayed by too frequent showers. A good crop of hay was secured, but more hay than usual was damaged by rains. A good grain crop matured and was harvested during the month. The absence of frost made the month favorable for gardens, which gave good yields. The water supply of the State was ample for needs of nearly every section.—*W. S. Palmer.*

SPECIAL ARTICLES.

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The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

**Abbot, Henry L[arcom].**  
Problems of the Panama Canal. x, 248 pp. 12°. New York. 1905.

**Clough, H[omer] W.**  
Synchronous variations in solar and terrestrial phenomena. (Reprinted from The Astrophysical Journal, Vol. XXII, No. 1, July, 1905.) Pp. 42-74.

**Eiffel, G.**  
Dix années d'observations météorologiques a Sèvres (Seine-et-Oise) (1892-1901). Avec la collaboration de M. G. Barbé. 94 pp. f°. Paris. 1904.

**Hesse, Grossherzogliches Hydrographisches Bureau.**  
Deutsches Meteorologisches Jahrbuch für 1904. Grossherzogtum Hessen. IV. Jahrgang. Herausgegeben vom Grossherzoglichen Hydrographischen Bureau. [12], 55 pp. f°. Darmstadt. 1905.

**Imperial Russian Geographical Society.**  
[Annual] report. 1904. [Russian text.] xii, 188 pp. 8°. St. Petersburg. 1905.

**Kayser, H.**  
Handbuch der Spectroscopie. Dritter Band. viii, 604 pp. 8°. Leipzig. 1905.

**Nansen, Fridtjof (Ed.)**  
The Norwegian North Polar Expedition 1893-1896. Vol. 6. Meteorology by H. Mohn. xiv, 659 pp. 4°. London. 1905.

**New South Wales. Government Astronomer.**  
Results of meteorological observations in New South Wales, 1900, 1901, 1902. 216 pp. 8°. Sydney. 1904.

**Prussia. Königlich Preussisches Meteorologisches Institut.**  
Anleitung zur Anstellung und Berechnung meteorologischer Beobachtungen. 2 Teile. vi, 66; 49 pp. 4°. Berlin. 1904-1905.

**Tarr, Ralph S[tockman].**  
New physical geography. xvi, 457 pp. 12°. New York. 1905.

**Thomson, J[oseph J]ohn].**  
Electricity and matter. (Yale University. Mrs. Hepsa Ely Silliman memorial lectures.) 162 pp. 8°. New York. 1905.

**U. S. Coast and Geodetic Survey.**  
A bibliography of geodesy. By James Howard Gore. Appendix No. 8, Report for 1902. 2d edition. Pp. 430-789. 4°. Washington. 1903.

RECENT PAPERS BEARING ON METEOROLOGY.

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The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —

*Bulletin of the American Geographical Society.* New York. Vol. 37.  
**Ward, R. DeC.** The conventions of Weather Bureau officials. [Note.] Pp. 555-556.